ANNOTATIONES ZOOLOGICAE JAPONENSES
Volume 44, No. 3—September 1971

Published by the Zoological Society of Japan

A New Chondracanthidae (Crustacea, Copepoda) Parasitic on a Scorpion Fish from Sagami Bay, Japan

With 18 Text-figures

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(*Communicated by* M. UÉNO)

ABSTRACT *Cryptochondria tricaudata* gen. et sp. n. is described on the basis of specimens found parasitic on the inner side of pectoral fin of a Scorpion fish, *Scorpaena neglecta* T. & S., taken from Sagami Bay, Japan. The new copepod is unique in the family Chondracanthidae in that the female has a ventral concavity on the head, in which the cephalic and the first swimming appendages are lodged.

Among the specimens of parasitic copepods of fishes sent from the Biological Laboratory in the Imperial Palace to Dr. S. M. Shiino for identification, a peculiar species of chondracanthid was found. It was obtained from Sagami Bay on the Pacific side of Japan, and the task of examining it has been entrusted to the present author. The specimens consisting of a female and a male bear all the characters of the family Chondracanthidae, but the presence of a ventral concavity on the head, in which the cephalic and the first swimming legs are lodged, is not met with in any of the known genera of the family.

The specimens were largely examined in 70% alcohol and for detailed observation in lactic acid. Figures were drawn by the aid of camera lucida.

Genus *Cryptochondria* gen. n.

Female: Body flattened, broader posteriorly. Head formed by fusion of cephalosome and first pedigerous segment. It has a pair of ventral processes and a ventral concavity in which cephalic and first legs are lodged. Neck short, slightly immersed in trunk on ventral side. Second leg lodged in a fold between neck and trunk. The latter composed of fused third to fifth pedigerous segments, flattened, and bearing expansions and processes. Genital segment globular, with round posterior margin. Abdomen distinct, bipartite. Caudal ramus with 6 spines. Egg sac longer than body; eggs multiseriate.

First antenna filiform, segmented. Second antenna uncinate. Oral appendages unknown. Labrum and labium lamellate, arising from the bottom of ventral concavity; their free margin round. Maxilliped with denticulated terminal hook. First and second legs biramous, unmodified; rami 2-segmented, armed with spines.

Male: Unmodified, with distinct metamerism. First pedigerous segment distinct from head. Caudal ramus as in the female. First antenna filiform, segmented. Second antenna uncinate, bearing an accessory branch. Oral appendages as in usual male chondracanthids. Paragnath present. First and second legs biramous; rami unsegmented, armed with spines. Third and fifth legs rudimentary.

Type-species: *Cryptochondria tricaudata* sp. n.

Gender: Feminine.

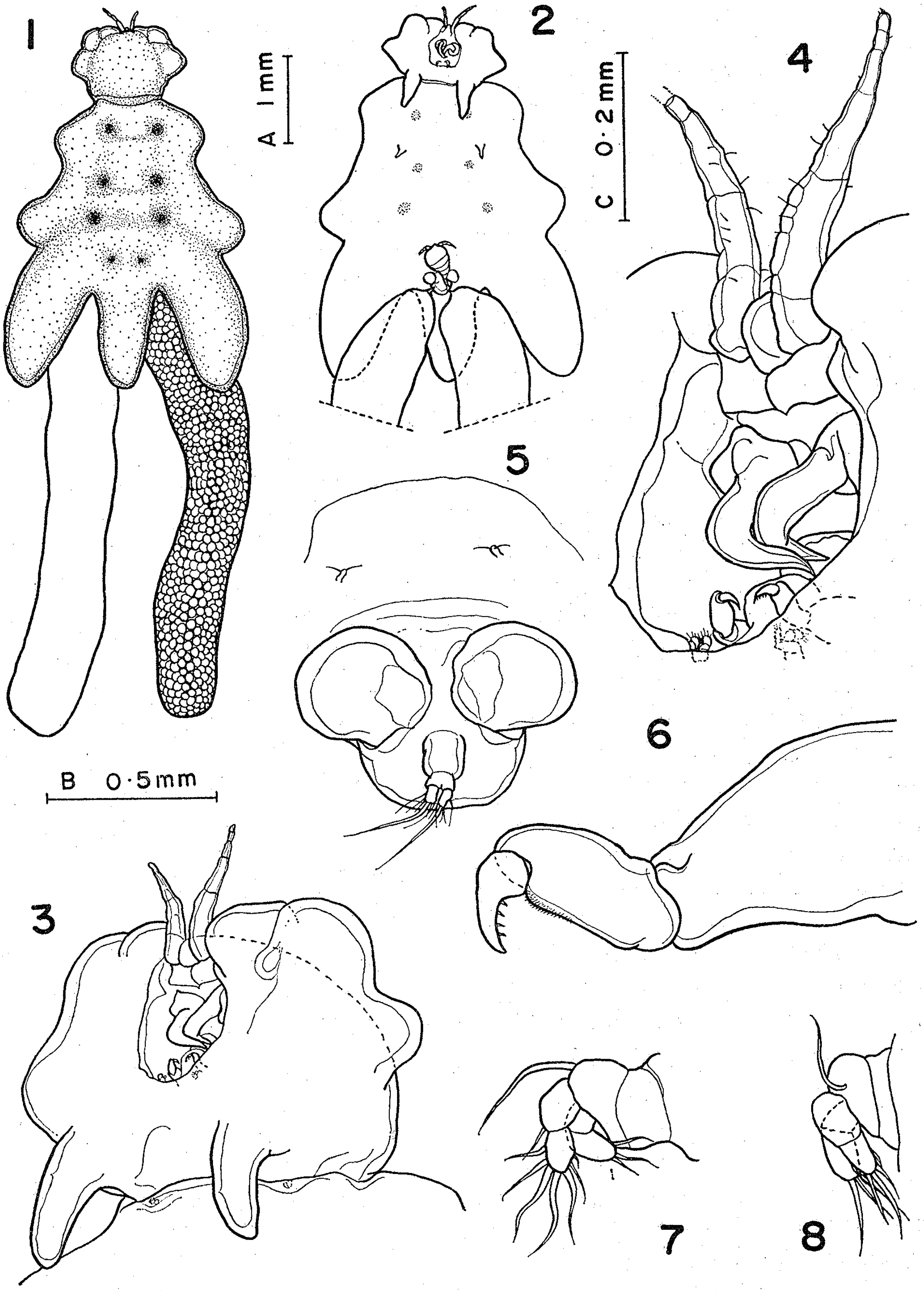
The name of the genus refers to the concealment of the oral appendages within the ventral depression of the head, and the specific one to the trifurcate condition of the trunk.

Cryptochondria tricaudata sp. n.

Record of specimens: One female with egg sacs and accompanied by a male, found on the inner side of pectoral fin of *Scorpaena neglecta* T. & S. taken by the staff of the Biological Laboratory in the Imperial Palace, off Jôgashima, Sagami Bay, at a depth of 52 to 56 m, in February, 1964. The female specimen is designated as the holotype and the male as the paratype. They are to be returned and deposited in that Laboratory.

Female: Holotype. Body composed of small head, short neck, flattened trunk with processes, and small genito-abdomen. Total length 4.1 mm (from head to postero-central process of trunk). Head 0.9 mm × 1.3 mm. Width of neck 0.8 mm. Trunk 3.2 mm × 2.8 mm (including body processes). Egg sac 5.1 mm × 0.8 mm. Body pale yellow, egg sacs yellow in alcohol.

Head consisting of cephalosome and first pedigerous segment, wider than long, roughly hexagonal, and carrying a pair of attenuating posterior processes on ventral surface; central portion obovate and globular dorsally, but flattened and with a central depression ventrally. Oral appendages and first leg lodged in ventral depression close to antennal region. Neck short, wider than long, probably formed by second pedigerous segment, and slightly immersed in trunk on ventral side where second legs locate. Trunk composed of third to fifth pedigerous segments, flattened dorso-ventrally, and a pair of small ventral processes, two pairs of lateral expansions, and three stout posterior processes. Four pairs of pits present on both dorsal and ventral surfaces of trunk. Genital segment located on ventral surface of trunk just in front of the base of medio-posterior process, wider than long, round on posterior margin and with a pair of spherical remnants of spermatophores, at the bases of which genital openings are present. Abdomen attached to genital segment on ventral surface about the middle, longer than wide, divisible into two



Figs. 1–8. *Cryptochondria tricaudata* gen. et sp. n., female. The letter enclosed in bracket succeeding to the explanation of each figure refers to the scale by which the figure was drawn.—1. Body, dorsal view (A).—2. Body, ventral view (A).—3. Head, ventro-lateral view (B).—4. Ventral concavity of head, ventro-lateral view (C).—5. Genito-abdomen, ventral view (E).—6. Maxilliped, ventral aspect (F).—7. First leg, ventral aspect (F).—8. Second leg, ventral aspect (F).

regions; the proximal cylindrical, and the distal short and slightly widening backward. Caudal ramus roughly rectangular, about two-thirds as broad as long, with a long and 5 short terminal spines.

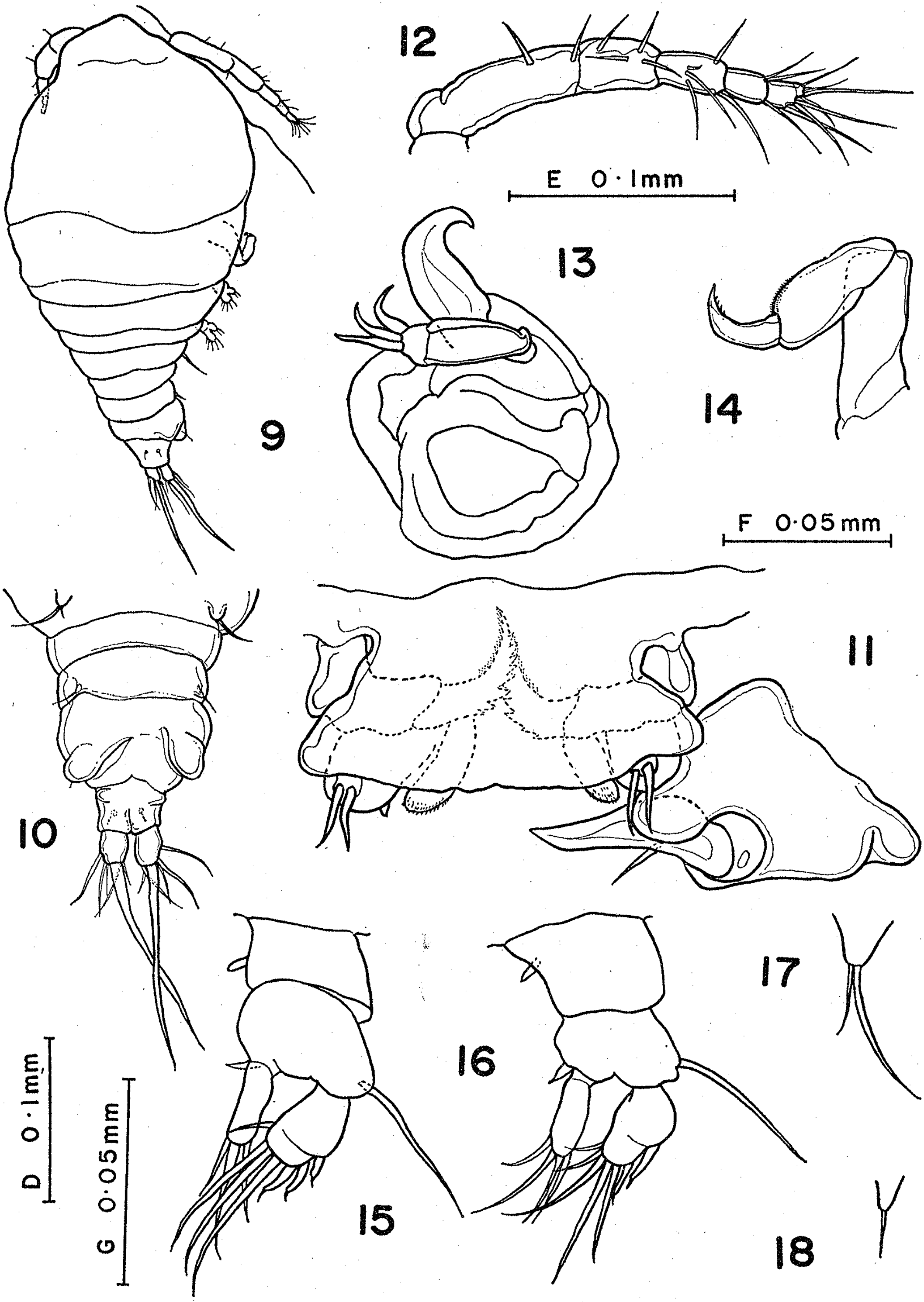
First antenna filiform, tapering distally, indistinctly 6-segmented, and meagrely furnished with fine spinules. Second antenna 2-segmented; proximal segment broad and short, distal segment uncinate, strongly curved. Labrum and labium lobate, subequal in size and shape, and with round free margin. Oral appendages unexamined. Maxilliped 3-segmented; first segment large, unarmed, second spinulated on inner surface in terminal region, third unguiform, with four small teeth on inner side. First two legs biramous, unmodified though small; protopodite indistinctly 2-segmented, with a spine at outer distal angle; both rami 2-segmented, armed with simple spines. Third and fourth legs absent. Fifth leg situated just in front of the base of the genital segment, represented by a tiny protuberance tipped with 2 setules.

Male: Paratype. Body more or less straightened, with distinct metamerism, 0.5 mm × 0.3 mm (excluding caudal ramus). Cephalothorax larger than the rest of body. First pedigerous segment distinct from head. First antenna 6-segmented (first segment with an indistinct border of subsegments near the base), slender, armed with simple spines. Second antenna 2-segmented, bearing accessory branch tipped with 3 spines. Labrum different from that of the female, widening distally. Mandible falcate and denticulated on both borders; teeth coarser on posterior border than on opposite side. Paragnath a small lobe spinulated on margin. First maxilla located just outside the paragnath, tipped by 2 spinules and a tiny process. Second maxilla 2-segmented; first segment thickened, second acuminate, only slightly curved, and with a spinule near the base. First two legs biramous, unmodified, subequal in size and shape to each other. Protopodite 2-segmented, longer than wide, bearing a short spine on inner border in each segment, and a longer one on outer border of distal segment. Both rami unsegmented, armed with simple spines; spines on outer border of exopodite shorter, ending in a sharply pointed apex. Fourth leg absent. Third and fifth legs present, rudimentary, represented by a tiny protuberance; third leg tipped with 2 spines of unequal length and fifth with a single spine. Caudal ramus similar to that of female.

DISCUSSION

The new copepod described above is unique in the family Chondrachanthidae in that the female oral appendages and the first leg are located close to the antennal region and are housed in the ventral concavity of the head with the antennae. This feature is rather similar to what is found in the genus *Tucca* Krøyer (Tuccidae), but the appendages show the characteristics sufficient to differentiate the new genus from the latter.

The new genus has some characteristics in common with four known genera



Figs. 9–18. *Cryptochondria tricaudata*, male.—9. Body, dorsal view (C).—10. Urosome, ventral aspect (D).—11. Mouth parts, with right second maxilla removed, ventral aspect (F).—12. First antenna, ventral aspect (E).—13. Second antenna, ventral aspect (F).—14. Maxilliped, ventral aspect (F).—15. First leg, ventral aspect (G).—16. Second leg, ventral aspect (G).—17. Third leg, ventral aspect (G).—18. Fifth leg, ventral aspect (G).

of this family, *Diocus* Krøyer, *Juanettia* Wilson, *Prochondracanthus* Yamaguti and *Rhynchochondria* Ho. In all of these, the female has the head formed by the fusion of cephalosome and the first pedigerous segment, the filiform first antenna, and the biramous, unmodified legs. It differs from *Diocus* in the second antenna not forming a T-shape, and in having unmodified caudal ramus with six spines, and from the other three genera in having two pairs of biramous legs and in lacking an accessory branch on the female second antenna. The male of the new genus is in common with the genera, *Immanthe* Leigh-Sharpe and *Rhynchochondria* Ho, in having a distinct body metamerism, cephalosome separated from the first pedigerous segment, and the accessory branch on the second antenna. It differs from *Immanthe* in that the latter has inconspicuous abdomen, caudal ramus armed with one terminal process, maxilliped ending in a lash-like terminal segment and two pairs of rudimentary legs, and from *Rhynchochondria* in that this genus has three pairs of biramous legs, rami of which are 2-segmented except in the third endopod.

ACKNOWLEDGEMENT

The author wishes to express his deepest appreciation to the staff in Biological Laboratory of His Imperial Majesty, for the generosity in permitting him the liberty of dissecting the material, and to Professor Emeritus Dr. Sueo M. Shiino who was kind enough to permit him the examination of the material, to provide him with valuable advice and to correct this manuscript.

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